Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

BENJAMIN LINCOLN ROBINSON Editor-in-chief.

FRANK SHIPLEY COLLINS
MERRITT LYNDON FERNALD
HOLLIS WEBSTER } Associate Editors.

WILLIAM PENN RICH
EDWARD LOTHROP RAND } Publication Committee.

Vol. 13. June, 1911. No. 150.

CONTENTS:

Amateur botanical Illustrating. *Agnes Chase.* . . . 93
Variety of Gaylussacia dumosa. *M. L. Fernald* . . . 95
Another Station for Centaurea diffusa. *R. A. Ware* . . 100
Pteridophyte Notes from Massachusetts. *S. F. Blake* . . 101
Helianthus subrhomboideus in New Hampshire. *A. S. Pease* 103
Flora of the Boston District,—XI. 104
Additional Plants from Nantucket. *J. A. Cushman* . . 105
A Variety of Fragaria virginiana. *M. L. Fernald & K. M. Wiegand* 106
Solidago polycephala in Maryland. *A. H. Moore* . . . 106
Cornus canadensis, var. intermedia. *M. L. Fernald & K. M. Wiegand* 107
Hottonia inflata a Winter Annual. *C. H. Knowlton* . . 108

Boston, Mass. 1052 Exchange Building. | Providence, R. I. Preston and Rounds Co.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of New England. Price $1.00 per year ($1.25 to all foreign countries including Canada); single copies 15 cents. Volume 1, $2.00, Vol. 2, $1.50. All remittances by check or draft, except on Boston or New York, must include ten cents additional for cost of collection. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to
B. L. ROBINSON, 3 Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to
W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Single copies may be had from
E. L. RAND, Corresponding Sec'y N. E. Botanical Club,
1052 Exchange Building, Boston, Mass.

Entered at Boston, Mass., Post office as Second Class Mail Matter

KEY TO NEW ENGLAND TREES, Wild and Commonly Cultivated, based primarily upon leaf characters, by J. FRANKLIN COLLINS and HOWARD W. PRESTON. Price 40c. net. PRESTON & ROUNDS CO., Providence, R. I

CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF AMERICAN PLANTS, 1885 TO DATE.

For American taxonomists and all students of American plants the most important supplement to the Index Kewensis, this catalogue in several ways exceeds the latter work in detail, since it lists not merely the flowering plants, but pteridophytes and cellular cryptogams, and includes not merely genera and species, but likewise subspecies, varieties and forms. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at $15.00 per 1000 cards.

GRAY HERBARIUM of Harvard University,
Cambridge, Mass., U. S. A.

CHECK LIST OF GRAY'S MANUAL, 7th EDITION, compiled by M. A. DAY. Leatherette. Pocket size. Invaluable for collectors' memoranda and herbarium records. Published and sold by the GRAY HERBARIUM, Cambridge, Mass. Price postpaid 20 cts. each. Ten copies $1.50.

Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3–4 in. 1 year $4.00, 6 months $2.50.

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 13. June, 1911. No. 150.

AMATEUR BOTANICAL ILLUSTRATING.

Agnes Chase.

It has recently been represented to the writer that botanists in general are unaware of the fact that it is not necessary to be an artist or even to have any artistic ability in order to prepare botanical illustrations, and it has been suggested that I (myself an evidence of this fact) tell others how it may be done.

The camera lucida, the reliance of most amateur illustrators, I never found satisfactory, for, if it is used with any object except the thinnest, the image is badly distorted. The simple method by which anyone, willing to take pains, may make accurate detail drawings is this: The object to be drawn is placed on a dissecting microscope, on a glass slide ruled in millimeter squares. The drawing paper is very lightly ruled in pencil in squares of the proper size to give the enlargement desired, in centimeters for an enlargement of 10 diameters, 5 millimeters for 5 diameters, etc. The object is then copied in outline, square for square, a hard pencil being used. This insures accuracy of outline after which details within can with care be correctly drawn. In preparing for dissection and drawing portions of dried specimens, such as the spikelets of grasses, heads of Eriocaulon, and Compositae, involucres of Euphorbia and flowers of Labiatae, glycerin will be found a valuable aid. These parts soaked or boiled in water alone, or soaked in alcohol or potash if of indurated texture, dry out so rapidly under the microscope that they are difficult to work with and change shape so continually that only a "lightning artist" could keep up with them. If boiled in water with a little glycerin these parts become pliable and can be dissected and displayed without tearing them. One does not have to work with needles or scalpel in a puddle of water, the

excess moisture can be taken up with a blotter or handkerchief and the glycerin-prepared tissue, whether delicate or indurated will not dry out. A further and great advantage is that the dissected pieces may be put away in an envelope on the herbarium sheet and will keep for reference — I do not know how long but at least for years. About three or four drops of glycerin to an inch of water in a small test tube (or to a teaspoonful of water) is the proper proportion. The parts to be dissected are dropped in this and brought to a boil. A few drops of glycerin placed on the object and a little boiling water added answers the purpose about as well as test tube and alcohol lamp.

The glass slides ruled in millimeter squares can be ordered from any dealer in microscopes and cost about two dollars, or those with finer lines with a row of squares ruled in tenths, about five dollars. The latter are necessary for mosses but not for flowering plants. It is convenient to have the slide 5 × 7 centimeters, the ruled square, 20 × 20 mm., in the center. Leaves or entire plants or portions of them may be drawn in the same way by laying the part to be illustrated on an herbarium sheet ruled in centimeter squares. For paper I have found the heaviest weight of linen ledger more satisfactory than any drawing paper. The heavy ledger paper permits a great amount of erasing without furring up under the pen. Before redrawing the erased place should be rapidly rubbed to a polish by means of some smooth rounded object such as the bone handle of a knife, otherwise the ink may spread on the scratched place. The pencil drawing when worked up to the best of one's ability may then be "inked in," using Higgin's India ink. For the beginner this is the trying part. Pen-and-ink is a much more difficult medium with which to express what one sees before him than is a pencil, but if the illustration is to be published, pen and ink is necessary unless one can afford to pay for wood-cuts or lithographs or is content with the usually unsatisfactory half-tone. Drawings for publications should be made at least twice the diameter the illustration is intended to be when printed, or, if one's lines are unsteady, the drawings may be made three or four times larger, to allow for greater reduction. It is necessary to keep in mind, however, that in so great a reduction spaces as well as lines are reduced and that unless kept well apart adjacent lines will run together and cause black spots or smudges, and also that the lines unless fairly heavy may appear broken. By practice one learns to make firm lines and a reduction to one half diameter effaces small

unevennesses. For ordinary work a Gillott 303 pen and for light lines (representing silky pubescence for instance) a Gillott 290 will be found about the right size. For the beginner outline drawings alone may suffice. Shading should be put in first with pencil until the desired effect is produced, the object being placed in such position as to make the shadows show the form to best advantage. When the surface permits of its use, stippling is the easiest way of shading. The pencil lines are erased from the finished drawing by a soft rubber, such as "Erasit" or "Artgum." One soon learns to take advantage of veining, scabridity, pubescence, etc., in expressing form and texture. Ideas may be gained by carefully studying the successful representation of particularly difficult subjects, as for instance, the heads of Antennaria and the Xanthium burs in Gray's Manual, 7th edition. I know of nothing more difficult to represent naturally in pen and ink than white pubescence or pappus, and spines, awns or hairs standing straight out. If such drawings are studied through a magnifying glass a better idea of the workmanship is obtained. The illustrations of the willows are good examples of stippling and pubescence used for shading. It is not meant to suggest that one should imitate these drawings but should study them to gain ideas only. If one is able to bestow any art on his drawing so much the better but it is the truthful, even if crude, illustration that is of value. In whatever tongue a description is published an accurate illustration speaks in every language, and drawing is well worth cultivating as a method of expressing the truth as we see it.

Bureau of Plant Industry, Washington, D. C.

THE NORTHERN VARIETY OF GAYLUSSACIA DUMOSA.

M. L. Fernald.

In June, 1910, Professor Wiegand and the present writer, in discussing a typical sphagnum bog of the coast of eastern Maine, said: "Practically all the vascular plants of this Quoddy Head heath were such as one would expect above tree-line on Mt. Katahdin or Mt. Washington or in the subarctic tundra of Labrador — *Scirpus caespitosus* L., *Carex pauciflora* Lightf., *Comandra livida* Richardson, *Rubus Chamaemorus* L., *Empetrum nigrum* L., *Vaccinium pennsyl-*

vanicum Lam., var. *angustifolium* (Ait.) Gray, *Aster radula* Ait., var. *strictus* (Pursh) Gray, etc.— but the most conspicuous plant at the time of our visit was *Gaylussacia dumosa* (Andr.) T. & G., forming dense depressed shrubs only 1 or 2 decimeters high, closely embedded in the *Sphagnum*, and loaded with beautiful white or pink-tinged bells. The distribution of this very distinct *Gaylussacia* is notable, for it occurs in bogs and wet swamps all the way from Newfoundland to Louisiana, in New England at least rarely extending far from the coast. Yet the plants with which it is associated in the Lubec bog and elsewhere in eastern Maine are chiefly polar types which do not extend far southward into the temperate areas of eastern America." [1]

At the time of writing this note our comparison of the northern and southern specimens of *Gaylussacia dumosa*, though revealing a slight habital difference, showed nothing more tangible by which the northern and southern extremes of the species could be separated. Later, in a letter Dr. R. M. Harper called attention to the fact that in the South *G. dumosa*, which in the North is a shrub of sphagnum bogs, occurs in dry barrens, and a search of literature as well as an inspection of herbarium labels emphasizes this fact. Thus Michaux, mistaking *G. dumosa* (*Vaccinium dumosum* Andrews) for the Linnaean *V. frondosum*, described it as growing "in pinetis, aridis, a Virginia ad Floridam";[2] Pursh taking it up as *Vaccinium dumosum* said that it grew "in dry sandy woods, particularly pine-forests: New Jersey to Florida." [3] Elliott said it "grows in dry, sandy soils," [4] and more recently Mohr has defined its habitat in Alabama as "Dry barren siliceous soil" [5] and its general distribution in the South as "Rare in the mountains, abundant in the dry pine barrens of the coast region." [5] Chapman, however, gives a slightly different account: "Low sandy pine barrens and swamps," [6] and though the labels of a very few herbarium specimens from North Carolina and Florida read: "low grounds" or "border of marsh," the great majority of specimens are from dry habitats.

In the more northern coastal states and the Maritime Provinces we find the habitat stated as follows. By Jacob Bigelow who took the northern plant to be Aiton's southern *Vaccinium hirtellum* it was found "In the edge of Richards' pond, Brookline [Massachusetts]",[7]

[1] Rhodora, xii. 106, 107 (1910).
[2] Michx. Fl. Bor. Am. i. 230 (1803).
[3] Pursh, Fl. Am. Sept. i. 285 (1814).
[4] Ell. Sk. Bot. S. Car. and Ga. i. 497 (1821).
[5] Mohr, Plant Life of Alabama, 657 (1901).
[6] Chapm. Fl. 258 (1860).
[7] Bigelow, Fl. Bost. ed. 2, 152 (1824).

and Bigelow made the discriminating observation: "Very nearly allied to *V. dumosum* of Pursh, and perhaps only a variety. Its aquatic growth and hirsute berries, which I do not find mentioned by American botanists, have led me to separate it from that species, with which it is usually considered synonymous." [1] Torrey, treating *Vaccinium dumosum* Andr. as synonymous with *V. hirtellum* Ait., took them both up as *Gaylussacia hirtella* (Ait.) T. & G. and stated that in New York it grew in "borders of ponds, and in wet sandy soils," [2] Fowler in his Plants of New Brunswick listed it only from "a peat bog." [3] Rand & Redfield found it on Mt. Desert Island only "in sphagnum bogs" [4] and the Connecticut Flora lists it only from "sphagnum bogs." [5] Similarly all the material in the Gray Herbarium from Newfoundland, New Brunswick, Nova Scotia and New England, and in the herbarium of the New England Botanical Club, comes from sphagnum bogs, boggy margins of ponds or similar habitats; never from dry soil.

As a general rule the bog- and humus-plants of southern New England occur on our mountains or in northern Maine or eastern Quebec in drier habitats than with us but only a few species (*Cypripedium acaule, Pyrola americana, Epigaea repens, Gaultheria procumbens,* etc.) of our silicious or acid soils reverse the principle and northward seek the sphagnum bogs and wet mossy woods. And whenever this singular reversal of habitats is noted we naturally inquire if there may not be some specific or varietal distinction between the northern and southern plants. In some cases no very apparent difference is found and in *Gaylussacia dumosa* the only striking difference which at first appears is that, as a rule the southern plant has narrower leaves than the northern — generally oblanceolate in outline, while the leaves of the northern plant tend more to be elliptic- or oblong-obovate; but this is only a tendency and breaks down in a long suite of specimens. A close study of the two series, however, shows that in the northern plant the leaves and the bracts of the inflorescence are always copiously glandular-dotted on both surfaces, while in the southern plant of dry soils the upper faces of the leaves and bracts are usually quite glandless, though occasionally glandular when first

[1] Bigelow, Fl. Bost. ed. 2, 152, (1824).
[2] Torr. Fl. N. Y. i. 448 (1843).
[3] Fowler, Prelim. List Pl. N. B. 41 (1885).
[4] Rand & Redfield, Fl. Mt. Desert, 124 (1894).
[5] Ct. Geol. Nat. Hist. Surv. Bull. xiv. 312 (1910).

expanded. In the intermediate belt, in eastern Pennsylvania for instance, the specimens are quite transitional in this character. In general, too, the calyx-lobes of the southern plant have smoother surfaces than in the northern, but this character is less obvious than is the presence or absence of glands upon the upper surfaces of the mature leaves and bracts. In this latter point the northern bog plant is so readily distinguished from the southern plant of dry sands that it seems best to separate them varietally. But when we approach the question of determining which was the original *Gaylussacia dumosa* we encounter some difficulty. The species, first designated as *Vaccinium dumosum* by Andrews in 1800, was inadequately described, the English reading: "Whortle-berry with oval, pointed, smooth leaves; flowers grow solitary from the foot-stalk of the leaves, close to the stem; foot-stalks of the flowers are very long, having floral leaves; blossoms pitcher-shaped, nearly white; ten chives."[1] The colored plate is very crude and shows neither pubescence nor glands upon the foliage, branchlets or even the calyx, so that it is impossible to say from the plate and description which extreme of the species Andrews had. In the note following the description, however, occurs the significant statement:—

"This species of Whortle-berry is a neat, compact, bushy shrub; and like all the rest of those which have ten chives, and the other parts consonant, can scarcely be considered as a hardy plant; for although it will live through a mild winter, if planted in a warm and dry situation, on an open border; yet it will in general be destroyed, by the severe frosts which happen late in spring..... As a hardy greenhouse plant it is best preserved in a flourishing state, and will flower about the month of June; in which month, this year, our drawing was made, at the nursery of Messrs. Lee and Kennedy, by whom it was introduced from North America in the year 1783."

From this note it seems most probable that *Vaccinium dumosum* was based upon the southern shrub of dry soils. The name was thus used by Pursh and other early American botanists, and as already noted the northern bog plant was treated by Jacob Bigelow as distinct, although the name he used for it unfortunately belonged to a southern extreme of the same group. In default of better evidence in the matter it seems best to treat the southern plant as typical

[1] Andrews, Bot. Rep. ii. t. 112 (1800).

Gaylussacia dumosa while the shrub of our northern bogs may appropriately bear the name

GAYLUSSACIA DUMOSA, var. **Bigeloviana**, n. var. A forma typica recedit foliis fere elliptico- vel oblongo-obovatis usque utrinque glandulosis, bracteis utrinque copiose glandulosis.

Differing from the typical form in having the leaves commonly elliptic- or oblong-obovate, permanently glandular on both faces, and in having the bracts of the inflorescence permanently and copiously glandular above as well as beneath.— Sphagnum bogs, wet heaths, and boggy pond-margins, Newfoundland to Connecticut, and probably slightly southwestward. TYPE: heath at base of West Quoddy Head, Lubec, Maine, July 26, 1909, *Fernald & Wiegand* (*Fernald*, no. 2038 in Gray Herb). Other specimens examined — NEWFOUNDLAND: as *Vaccinium frondosum*, without definite locality, *la Pylaie*; edges of bogs, Whitbourne, August 16, 1894, *Robinson & Schrenk*, no. 201: heaths overlying carboniferous area, Stephenville Crossing, August 14, 1910, *Fernald & Wiegand*, no. 3853: "rich rocky soil", hillside, Channel, July 27–Aug. 1, 1910, *Howe & Lang*, no. 872. NEW BRUNSWICK: Kent County, July 14, 1870, *J. Fowler*. NOVA SCOTIA: Smoky Mt., Cape Breton Island, August 8, 1898, *J. Macoun*, no. 19,775; Canso, July 26, 1901, *J. Fowler*. MAINE: "Bangor Bog," Orono, 1880, *Kate Furbish*; growing with *Empetrum nigrum*, *Rubus Chamaemorus*, etc., Lubec, 1828, *Wm. Oakes*; Jonesport, *F. H. Peabody*; bog, Somesville, September 20, 1892, *M. L. Fernald*; Great Marsh, Great Cranberry Isle, Aug. 27, 1889, *E. L. Rand*, July 20, 1899, *E. F. Williams*; bog, Manchester, July 7, 1874, *F. L. Scribner*; Town Bog, Wells, July 11 and Sept., 1898, *Kate Furbish*; Wells Beach, 1898, *Kate Furbish*. NEW HAMPSHIRE: Muddy Pond, Pautuckaway Mt., Nottingham, September 15, 1899, *A. A. Eaton*. MASSACHUSETTS: pond, Tewksbury, June 23, 1853, *Wm. Boott*; Long Pond, Melrose, June, 1880, *H. A. Young*; sphagnum around Muddy Pond, Stony Brook Reservation, June 17, 1895, *W. P. Rich*, Aug. 23, 1896 and June 26, 1897, *E. F. Williams*; Hammond Pond, Newton, June 9, 1854, *Wm. Boott*; Muddy Pond, Dedham, August 18, 1854, *Wm. Boott*. RHODE ISLAND: South Kingston, *S. T. Olney*. CONNECTICUT: peat swamps, Southington, June 23 and September 1, 1897, *C. H. Bissell*, no. 385, June 7, 1899, *L. Andrews*, no. 798; open sphagnum bog, Litchfield, June 26, 1906, *C. H. Bissell*; Bethany, July 5, 1886, *E. B. Harger*.

GRAY HERBARIUM.

ANOTHER STATION FOR CENTAUREA DIFFUSA.

Robert A. Ware.

In 1902, *Centaurea diffusa* Lam. was reported from Norfolk, Massachusetts.[1] As this plant of continental Europe seems not yet to have made its appearance in this country to any considerable extent it may be well to record its presence in Plainville, Massachusetts.

My friend and companion of many walks and drives, Dr. H. S. Kilby of North Attleboro, to whom indeed I am indebted for first arousing my botanical interests, had noted the strange plants and, in accordance with a pleasant custom, planned a trip which should reveal them to me. Without intimating the object of the trip, he took me on August 7, 1909, to the neighborhood, which is well removed from railroad and important thoroughfares — driving slowly that I too might have the joy of discovery. No doubt my enthusiastic expressions of interest were counted sufficiently rewarding, but not until specimens had found their way to the Gray Herbarium was their identity established.

Last year in July, I visited the station again. The plants were very numerous, occupying an open area about 45 × 90 m. of hard, dry, gravelly soil about a cellar where once stood a dwelling, since burned. They were from 2 to 8 dm. high, had a stout, elongated, vertical root, with few fibrous rootlets, and were grayish-green and scabrous throughout. Such basal leaves as they may have possessed earlier had disappeared at the time of my visits. Those of the stem and branches were not conspicuous, the uppermost being very small and entire, the lower pinnate with few, very narrow divisions. The numerous small heads, 2–5 mm. in diameter through the involucre, terminated the stiff, divergent branches and branchlets. The appressed tips of the outer involucral bracts were deeply and sharply pectinate-ciliate. The flowers were mostly white, with relatively few a delicate pink, and others a deeper rose-purple. Later examination with a lens, showed the pectinate tips to be minutely spinose, the inner bracts smooth, not pectinate, but with scarious margins more or less lacerate and a sharp, extended mid-rib, the achenes smooth and pappus setose.

[1] Rhodora, 4: 249. 1902.

Nearby, but on a slightly lower level, are the ruins of a tiny mill, its basement walls, water way and wheel still surviving. Seeking out the proverbial "oldest inhabitant" I found that, while he had never noticed the plants in question, he was possessed of a keen memory for the events of his earlier years. Welcoming a patient listener, he told me the story of the mill which for several generations prior to 1893 when it was burned, had contributed to the welfare of this isolated hamlet. For at least a part of its existence it had been devoted to the making of carpets, materials for which had been assembled from various sources.

While it is known that the plants have been growing there for at least a dozen years, the period is probably much longer. It is doubtless also safe to assume that the mill is responsible for their presence. And yet the wonder is that, having established themselves at all and having persisted so long, they have not increased their area far beyond the present limits. They have not even crossed to the opposite side of the narrow roadway where apparently conditions are identically the same. With the exception of a single plant found in an adjacent rather poor grass field, somewhat careful examination failed to reveal any extension of the limits first noted.

Boston, Massachusetts.

PTERIDOPHYTE NOTES FROM EASTERN MASSACHUSETTS.

Sidney F. Blake.

Woodsia obtusa (Spreng.) Torr. Winter occurrences of this plant are apparently rather rare at least in this region, so that it may be well to record four small specimens (no. 288, my herb.) of this species, of varying degrees of greenness, collected on a large rock in Canton on 27 March, 1909.

Dicksonia punctilobula (Michx.) Gray. On 21 March, 1909, I collected three small fronds (no. 285), which had endured the winter, on faces of cliffs in North Stoughton near the Avon boundary, possibly one or two of them really inside Avon limits. My search in the same locality on 30 January, 1910, failed to bring any of the plants

to light, but on 15 January of this year I found Dicksonia in comparative abundance both at this locality and at a new one clearly inside Stoughton territory. At the North Stoughton-Avon locality, where the fern was growing in protected nitches of the rocks on both the east and west sides of the railroad cut, I collected some sixteen fronds (no. 2067, my herb.), ranging in length from a minute and doubtless very young nearly perfectly green plant about 8 mm. long to one 12.5 cm. high with several pinnules or portions of pinnae brown and dead.

At the Stoughton locality the plants grew for some distance along the eastern side of the railroad, in a situation to receive the afternoon sun, chiefly in crevices on the western face of a stone wall bordering a slope descending toward the track. Here some thirty-four fronds (nos. 2065, 2066), more or less completely green, were collected, showing about the same variation in size as the other lot though averaging rather larger. In several cases, where the stipe was comparatively short in relation to the lamina (e. g., 2 cm. and 7.5 cm.) it was very thickly covered with the brownish hairs, as though imperfect development of the stipe had compressed them into smaller compass than normal. Dr. Robinson, who has examined all these specimens, agrees with me in thinking that the occurrence of so many fresh green fronds of small size (6 cm. long or less) can be explained only by supposing growth at favorable periods during the winter, which was exceptionally free from snow up to the date when the plants were collected.

So far as I have been able to ascertain, the Hay-scented Fern has not previously been credited with ability to withstand frosts and wintry weather. It is not mentioned in the late Mr. Davenport's notes on winter ferns, published in Rhodora in 1904.

Botrychium obliquum, var. *oneidense* (Gilbert) Waters. In Rhodora, xii, 80 (April, 1910), this grape fern was recorded from eastern Massachusetts on the basis of specimens collected in Canton, 8 March, 1909. Recent study of other specimens in my herbarium has convinced me that they represent the same form, and with this opinion Dr. Robinson, who has just examined them, agrees. The following representative sheets — no. 254, rich wet open meadow, 27 November, 1908; 273, very damp meadow, 13 February, 1909; 834, rich soil in meadow, 20 Sept., 1909 — from three different though adjacent spots in Stoughton, taken in connection with the Canton specimens, indicate that this variety is probably fairly well distributed in eastern

Massachusetts. Quite likely it is often taken for *B. ternatum*, var. *intermedium*, with which indeed, so far as can be judged from herbarium series, it seems to intergrade, while at the other end specimens with less and less obtuse pinnules taper off into *B. obliquum*. The examination of much material, both in the Gray Herbarium and my own collection, has practically convinced me that through this form *B. obliquum* and *B. ternatum*, var. *intermedium* inosculate.

Lycopodium clavatum, var. *megastachyon* Fernald & Bissell. On 24 November, 1910, in a grove of *Pinus rigida* in a pasture in Sharon, Massachusetts, I came upon a clubmoss which I recognized as this recently described variety, with which I had become familiar in the summer of 1909 in Hillsboro County, New Hampshire. Of the three sheets collected, one sheet (2026), having nine one-spiked peduncles to one two-spiked, must be called nearly typical *megastachyon*. The other two sheets, which together show seven unispicate and nine bispicate peduncles, are very good intermediates. In the original description this variety was recorded from the western part only of the state.

Stoughton, Massachusetts.

Helianthus subrhomboideus in New Hampshire.— On 11 September, 1908, I collected in fruit along the Grand Trunk Railway, about a mile northwest of Gorham, New Hampshire, an unfamiliar composite. A few days later, 23 September, 1908, Mr. A. H. Moore and I found the same species in the Grand Trunk freight-yards at Berlin, New Hampshire, about five miles from the former locality. On 18 July, 1910, the Gorham locality was revisited and the plants were found to have increased considerably in numbers and to be coming into flower. Specimens were sent to the Gray Herbarium where Professor Fernald kindly identified them as *Helianthus subrhomboideus* Rydb., a native of high plains of the Northwest and not hitherto reported from the range of Gray's Manual. The existence of two stations and the tendency of one of them to spread suggest that this species may be expected along the Grand Trunk in adjacent western Maine and northeastern Vermont and that it may become a permanent addition to our flora. Specimens from both stations are in the herbarium of the writer and one from the Gorham locality has been placed in the Gray Herbarium.— Arthur Stanley Pease, Urbana, Illinois.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,— XI.

CYPERACEAE.

ERIOPHORUM.

E. callitrix Cham. Cold bogs; reported from several scattered stations.

E. gracile Roth. Cold bogs and swamps. Nine scattered stations in northeastern and central portions. An early bloomer which has escaped many collectors.

E. tenellum Nutt. Boggy meadows, well distributed.

E. virginicum L. Bogs and wet meadows; common throughout.

E. virginicum L., var. **album** Gray. Danvers (*J. H. Sears*, Sept. 1, 1885); Harland St. meadows, Milton (*J. R. Churchill*, Sept. 1, 1895).

E. viridi-carinatum (Engelm.) Fernald. Boggy meadows and swamps. Not reported from the extreme southeastern portion, but abundant elsewhere.

FUIRENA.

F. squarrosa Michx. Shores of Round Pond, Tewksbury, 1854 (*Wm. Boott*) to the present.

HEMICARPHA.

H. micrantha (Vahl) Pax. Sandy shores of ponds, rare; North Andover, Andover, Winchester, Concord, Wayland, Framingham, Sherborn.

RYNCHOSPORA.

R. alba (L.) Vahl. Meadows and bogs; not reported from the extreme southeastern portion, but abundant elsewhere.

R. alba (L.) Vahl, var. **macra** Clarke. Fresh Pond, Cambridge (*Wm. Boott*, Aug. 20, 1853); Round Pond, Tewksbury (*M. L. Fernald*, Sept. 18, 1909).

R. fusca (L.) Ait. f. Low ground, frequent in northern three quarters of district, doubtless throughout.

R. glomerata (L.) Vahl. Moist soil, abundant throughout.

R. macrostachya Torr. Great Pond, South Weymouth (*Wm. Boott*, Sept. 2, 1870; *E. & C. E. Faxon*, Sept. 19, 1878; *G. G. Kennedy*, Sept. 9, 1908).

R. macrostachya Torr., var. **inundata** (Oakes) Fernald. Great Pond, South Weymouth (*E. Faxon*, Sept. 19, 1878; *G. G. Kennedy*, Sept. 9, 1908).

CLADIUM.

C. mariscoides (Muhl.) Torr. Margins of ponds and wet places, common throughout. Collected by E. F. Williams in a *salt-marsh* at Scituate.

SCLERIA.

S. reticularis Michx. Wet sandy and gravelly shore, Winter Pond, Winchester, from 1858 (*Wm. Boott*) to the present.

S. triglomerata Michx. Open place in dry woods near a dry watercourse, South Sudbury (*W. P. Rich*, Aug. 8, 1899); Concord (*E. S. Hoar*, according to Dame & Collins, Fl. Middlesex Co. 114, 1888).

C. H. Knowlton
J. A. Cushman
Walter Deane
A. K. Harrison
} *Committee on Local Flora.*

Three additional Plants from Nantucket.— The following plants may be of interest as not being previously recorded from Nantucket. Specimens of *Polypodium vulgare* L. were found by Miss Grace Gardner of Nantucket last summer. *Corallorhiza maculata* Raf. was found by Mr. Nelson, a Cornell student, who spent the summer on the island. In 1909 I found some patches of *Glaux maritima* L. on Tuckernuck Island and in 1910 found an abundance of it in the marshy area about the south inlet of the Island. It spreads over a large area along the shore and is of the small-leaved typical form. Specimens of these three species are in the herbarium of the Nantucket Maria Mitchell Association at Nantucket.— Joseph A. Cushman, Boston Society of Natural History.

A boreal Variety of Fragaria virginiana.— The plant here considered, though recognized before as a species, seems best treated as a variety as follows: —

Fragaria virginiana Duchesne, var. **terrae-novae** (Rydberg), n. comb. *F. terrae-novae* Rydberg, Mem. Dept. Bot. Columbia Univ. ii. 182 (1898). All the *Fragaria virginiana* from southern Labrador and nearly all from western Newfoundland and northeastern Quebec differs from the typical form of the species in having the pubescence of all the petioles and the scapes closely appressed. In true *F. virginiana* (including *F. canadensis* Michx.) the petioles at least of the earlier leaves have horizontally spreading or even somewhat reflexed pubescence. The typical *F. virginiana* was seen by us in western Newfoundland during the past summer only once (a single individual among the abundant var. *terrae-novae*). Similarly in the Gaspé Peninsula of Quebec the var. *terrae-novae* is everywhere abundant, while the true *F. virginiana* with the petioles divergently pubescent is so unusual that it has been collected as a rarity whenever found. The var. *terrae-novae* is thus parallel in the character of the pubescence with *F. vesca* L., var. *americana* Porter, *Potentilla canadensis* L., var. *simplex* (Michx.) T. & G. and some other well known members of the *Rosaceae*. It is abundant in southern Labrador, ascends on alpine meadows to 1125 m. on Table-top Mountain, Gaspé, on walls of the North Basin of Mt. Katahdin to 1290 m., is found in Oakes' Gulf of the White Mountains up to 1360 m., and is at various stations both inland and coastal in Maine and locally in northern Vermont. In the southern part of its range it passes very clearly to typical *F. virginiana*, plants with both types of pubescence sometimes occurring in the same colonies.— M. L. Fernald and K. M. Wiegand.

Solidago polycephala in Maryland.— While on a collecting trip in Anne Arundel County, Maryland, September 4, 1910, I collected by the roadside between Muirkirk and Contee a *Solidago* of the Section *Euthamia* which did not appear familiar. It seemed to answer to the description of *Solidago polycephala* Fern. given in the seventh edition of Gray's Manual. A comparison of it with the type of *Euthamia floribunda* Greene in the National Herbarium, upon which

Fernald's species is based, furnished conclusive evidence of the identification. The Manual makes the following statement regarding the range of *Solidago polycephala*: "Apparently local, s. N. J. and e. Pa." Although not unexpected in a new or little known species, the extension of range seems worthy of record. It will now be interesting to learn whether it is local in this region also. The species is sufficiently distinct from *S. graminifolia* (L.) Salisb. var. *Nuttallii* (Greene) Fern. by reason of its "uncommonly small heads," [1] or as Fernald [2] expresses it, "by its tiny involucre," and its closely appressed scales, tipped with green. The green color does not seem to me to be quite so significant as has been suggested, for there are not a few specimens of *S. graminifolia* var. *Nuttallii* in the National Herbarium which have just as green tips.— Albert Hanford Moore, Washington, D. C.

Cornus canadensis, var. intermedia in eastern America.— The common bunch-berry, *Cornus canadensis* L., has the leaves ordinarily closely crowded and appearing whorled at the summit of the nearly naked or only slightly bracted stem. In northwestern America, as recently pointed out by Miss Edith M. Farr,[3] the common tendency of the plant is to have on the middle of the stem 1–3 pairs of well developed leaves, which are about one-half or two-thirds as large as the upper leaves. This plant, *C. canadensis*, var. *intermedia* Farr, was earlier described by Ledebour [4] as a species under the name *C. unalaschkensis*, but because of the pale flowers, the tendency to bunching of the upper leaves, and the general similarity of appearance, it seems best to class it as a variety of *C. canadensis*, into which it clearly passes. In Labrador and Newfoundland both *C. canadensis* (typical) and var. *intermedia* occur, and several plants from the northern half of Maine and from New Hampshire, which have been collected with the hope that they might be *C. suecica*, approach var. *intermedia* and suggest that the variety may be confidently sought in northern New England. From *C. suecica*, which the variety somewhat simulates, it is distinguished by having the more acuminate leaves, less uniform in size, the upper definitely larger than the lower and preserv-

[1] *Euthamia floribunda* Greene, Pittonia, v. 74 (1902), not *Solidago floribunda* Phil.
[2] *Solidago polycephala* Fern. Rhodora, x. 93 (May 16, 1908).
[3] Contrib. Bot. Lab. Univ. Pennsylvania, ii. 423 (1904).
[4] Fl. Ross. ii. 378 (1844–46).

ing the crowded or subverticillate appearance as in true *C. canadensis*, while the flowers (the true flowers, not the bracts) are pale as in the latter species, those of *C. suecica* being dark purple.— M. L. FERNALD and K. M. WIEGAND.

HOTTONIA INFLATA A WINTER ANNUAL.— Early in December, 1910, while passing a brook at West Hingham, Mass., I was surprised to discover in the icy waters young plants of *Hottonia inflata* Ell. reaching nearly to the surface. The plant would have been easily recognized by its pectinate submerged leaves, even if I had not seen it there in blossom several times in summer. On Dec. 31, 1910, I removed an inch of ice, and gathered specimens from water at the temperature of 39° Fahrenheit. There were no signs of old plants, and the roots of these specimens were soft white cellular fibres, of very recent growth. March 26, 1911, I found that the plants in the brook had made further growth.

From these observations I am convinced that this species is a winter annual, instead of a perennial, as stated in Gray's Manual, Seventh Edition. Britton's Manual and Small's Southern Flora make no reference to the matter.

Apparently the seeds fall from the decaying stalks in late July and August, and soon germinate at the muddy bottom of the stream. The young seedlings must grow rapidly at first, with slight progress during the winter months. In May the inflated flower-stalks begin to grow, and the first flowers appear by the end of the month, reaching their fullest development about June 20. After flowering, the old plants shed the pectinate leaves and decay as the seeds ripen.

I have seen the plant growing also in Amesbury, Belmont, Waltham, Quincy, Holbrook, and Abington.— CLARENCE K. KNOWLTON, Hingham, Massachusetts.

Vol. 13, no. 149, including pages 77 to 92, was issued 1 May, 1911.

RECENT PUBLICATIONS

Apgar's Ornamental Shrubs of the United States, $1.50

This new book contains descriptions in plain English of practically all the hardy cultivated shrubs of North America. The introductory chapter tells how plants are propagated, while Part I describes leaves, flowers, and fruits. Part II consists of keys to the genera, with page references to Part III, which contains descriptions of some 900 shrubs, of which more than 600 are illustrated with drawings from nature by the author. This useful volume makes it easy for anyone, without special training, to find for himself the name of any shrub he is likely to come across.

Coulter, Barnes, and Cowles's Textbook of Botany—Vol. I. $2.00

Part I. Morphology, $1.50
Part II. Physiology, $1.25

By **John Merle Coulter**, Professor of Plant Morphology, **Charles Reid Barnes**, Late Professor of Plant Physiology, and **Henry Chandler Cowles** Assistant Professor of Plant Ecology, all of the University of Chicago.

This is a strictly modern presentation of the fundamentals. It is distinguished by its logical presentation, orderly arrangement, subordination of details to principles, omission of sterile facts, and numerous excellent original illustrations.

Specimen pages on request

AMERICAN BOOK COMPANY

NEW YORK CINCINNATI CHICAGO BOSTON

HOME GROWN LILIES.

Fresh from Beds. Wild Flowers, Hardy plants of all kinds.
Send for catalogue.

F. H. HORSFORD, Charlotte, Vt.

BOTANY LABELS 85c. PER 1000

POSTPAID

Also, printed envelopes, letterheads and statements
$1.00 per 1000 plus stock

For samples write to D. LEWIS DUTTON, Brandon, Vermont

CAMBRIDGE BOTANICAL SUPPLY COMPANY,

WAVERLEY, MASS.

BOTANICAL SUPPLIES OF EVERY DESCRIPTION.

Samples of Driers and Mounting Papers sent on request.
ASK FOR NEW CATALOG, NO. 91.

STANDARD MATERIAL. IMMEDIATE SHIPMENT.

Physiological Instruments. How do Plants Work?